

AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

"O fortunatos nimium sua si bona norint
Agricolae." VING.

VOL. III.

BALTIMORE, FRIDAY, SEPTEMBER 21, 1821.

NUM. 26.

AGRICULTURE.

THE RIGHT TIME TO FELL TIMBER—WITH A VIEW TO ITS DURABILITY.

MEREDIAN HILL,
Washington, Sept. 3, 1821. }

SIR—

I owe an apology for occupying so much of your paper, with a subject not exclusively Agricultural; but, as it is of vital importance to the country, I hope I may find some indulgence—for it is of some consequence to agriculturists whether our Ships, the common property of the nation, shall only last from ten to fourteen years, as is common in England and France, or upwards of half a century, as we have good reasons, from past experience, to believe they may: besides, the causes which produce the rapid decay in the one case, and the durability in the other, will be a solution to your enquiry—Wood, as I before observed, not changing its nature by a change of use.

The subject is interesting in another point of view—That nation which possesses the secret of preserving its ships from destruction as long even as we have preserved the Constitution, United States, Constellation, &c. must have an immense advantage over those nations which have to renew them every ten or twelve years, after an expenditure of heavy sums in their repairs.

The ships above enumerated, have been preserved upwards of twenty years, and from present appearances, there is but little doubt that their preservation may yet be extended to double that length of time: and, it will not be denied, that if under the imperfect system which has been adopted with regard to them, results so satisfactory have been had, we have good reasons for believing, that if we pursue the same principles with the care which our experience dictates, the ships we are now building, and may hereafter build, will last at least equally as long—and there is no reason why they should not last much longer.

The British Navy is estimated at 800,000 tons, and the duration of their ships at eight, twelve and fourteen years: to keep up which, at the greatest rate of duration, 57,143 tons must be annually built—a tonnage equal to 28 ships of the line, at an expense of about eleven millions of dollars, and a consumption of 113,546 loads of wood—which would be equal to 170,319 trees fit for naval purposes, the growth of 4257 acres.—This is exclusive of masts, yards, &c.

Such is the state of the English Navy, from good authority; and such the nature of decay and expense to which it is subject. Now let us look at the French.

Last year the Minister of Marines states in his Budget, that the sum required for the Navy, is sixty-five millions of francs, or thirteen millions of dollars; that, with this annual allowance for ten years, the condition of the French navy will, making some allowance for the unequal durability of their Ships, be as follows:

| At the end of | 1821 | 51 | Ships of Line, & | 36 | Frigates. |
|---------------|------|------|------------------|----|-----------|
| " | " | 1822 | 50 | " | " 39 |
| " | " | 1823 | 52 | " | " 43 |
| " | " | 1824 | 52 | " | " 46 |
| " | " | 1825 | 47 | " | " 47 |
| " | " | 1826 | 46 | " | " 44 |
| " | " | 1827 | 40 | " | " 44 |
| " | " | 1828 | 39 | " | " 48 |
| " | " | 1829 | 40 | " | " 51 |
| " | " | 1830 | 38 | " | " 49 |

The term of the durability of French Ships, is fixed by him at thirteen years; but, he states, that in many instances, from their great exposure during the construction, very little hope is entertained of their lasting more than ten years. It would appear then, that within the ten years to which he has limited himself, all the ships now in existence in the French navy will have perished—and a force equal to thirty-eight ships of the line, and forty-nine frigates will have been built—and that the expense of her navy, during that time, will be one hundred and thirty millions of dollars; and the consumption of timber must be proportionate to what it would be under the same circumstances in England—a consumption exceeding, as I shall endeavour briefly to shew, the abilities of one, if not both of those countries to supply.

The number of tons annually to be built in ENGLAND, for the navy, the East India Company and merchant service, is 162,937, requiring 241,558 trees, which at thirty-four to an acre, will be the produce of 7,104 acres of first quality of timber land, to supply the annual consumption.

"Allowing," says M^r Williams, "an average of eighty years growth, there ought to be now standing to meet this consumption 568,320 acres of oak, and an annual planting in perpetuity of 7,104 acres, for shipping only."

To this must be added the whole internal demand for buildings, implements of husbandry, machinery, canals, bridges, docks, &c. &c. as enumerated and estimated in the report laid before Parliament on the 13th March, 1817; by which it would appear that the internal demand may be estimated at seven times the amount of that of the shipping, which would require 3,978,240 acres of wood now standing, and an annual planting and felling in perpetuity of 49,728 acres: making the whole consumption of England 56,832 acres—and the number to supply this demand 4,545,566, with an annual planting in perpetuity of 1,932,288 trees.

The whole of the once extensive Royal Domains, (says M^r Williams) now appropriated to the growth of timber for the navy, is stated to be about 38,000 acres! a diminutive proportion indeed! The average quantity of timber which the whole of the royal forests have furnished, for the seven years preceding 1815, according to the report of the Commissioner, was 4247 loads per year, and in that year they supplied only 4110 loads.

On the maps of Scotland, observes the learned author of "Caledonia," there are a thousand names of places derived from Woods, which no longer exist on the face of the country. It is said of Ireland, that fifteen years ago, one fourth of the profitable land was under wood: and it appears, that in 1690, she exported 1,840,000 staves of different kinds, but that in 1761, '62 and '63, she paid an average of £50,000 for annual imports of timber—Whence it appears, that Ireland is in pretty nearly the same state as England, with regard to the diminution of its wood.

FRANCE, according to Arthur Young, possesses 19,850,000 acres of wood land, which is more than three times the quantity required for the consumption of the United Kingdoms of England, Ireland, and Scotland; and yet in France a scarcity prevails. What then must be the condition of Great-Britain, when England alone, independent of Ireland and Scotland, imported in 1816, timber to the amount of £3,262,297 19s. 6d?

We may judge of the condition of France, and thence infer that of England, after perusing the following extract, translated from the Maritime and Colonial Annals of August 1820.

"S. Exc. le Ministre de la Marine, convinced of

the necessity of informing himself of the means of diminishing the consumption of wood of large dimensions, as well for the construction of the hull, as for the masting of ships of the line, and wishing to supply its place by some process of art, that will offer equal strength for navigation and combat, has placed before the King, the motives which make it desirable that the solution of a problem so important, should be rendered as complete as possible:

In consequence, thereof, his Majesty has decided, that a competition should be opened in the different naval ports, for the solution of the questions contained in the following Programme."

Programmé.

"Wood of large dimensions becoming scarce, not only in France, but in the greater part of Europe, we must soon discontinue the construction of ships of the line, if we cannot succeed in composing their frames in a manner that timber of a smaller size may be employed."

"It is in the hope of obtaining a satisfactory solution to this important problem, that a competition is opened on the following question."

"What would be the best manner of disposing of the timber of a vessel, so as to make it practicable to employ in the construction the smallest number of large pieces of wood without diminishing the solidity, or suppressing any of the qualities essential to navigation and battle?"

"Independent of the question relative to the hull of the vessel, a second question for the same competition is offered."

"What means are there of uniting many pieces together, to form a lower mast to supply the place of those of one piece, (the scarcity of which is every year more and more felt) giving to this composed mast all the qualities necessary for the object, which are principally lightness and elasticity?"

"The author of the memoir on the hull, that shall be approved of, shall receive a medal worth 2400 francs; and the successful author of the memoir on masts, a medal worth 1200 francs; and after a successful trial, to each, an additional medal of the value of the one they originally received."

Signed,

BARON PORTAL.

In England, Sir Robert Seppings was Knighted, for producing a means of building ships of smaller timber; and every thing goes to prove, that without a foreign supply of timber, it would be difficult for France, and impossible for England, to keep up their respective Navies.

At this time, the agents of England are in our forests; and immense contracts have been made for the supply of American ship timber.—At one time it was gravely discussed in Parliament, whether the want of ship timber in England would not render it advisable to remove their dock yards to India; but the scarcity of timber even there, and the apprehension of placing this principal arm of defence, too far beyond the reach of the government, caused them to encourage planting at home, and importation.

The following extract from the proceedings of the British Society of Arts, at which the Duke of Sussex presided, will shew the encouragement given to planting of forest trees, and the great efforts that are making to produce timber of native growth, for naval and other purposes.

"In distributing the rewards, the first gentleman named was Charles Pysche Palmer, esq. M. P. to whom were given two large gold medals, and a large silver medal; the first for planting 280 acres with 803,420 forest trees, and 30,700 oaks for timber; the latter for sowing 216 bushels acorns on 240 acres."

The next was a large gold medal, given to Thomas Wilson, esq. of Fitzroy-Square, for sowing 240 bushels of acorns on 266 acres. The small or Ceres gold medal was given to Sir W. Templer Pole, Bart. Shute-House, near Arminster, for raising 306,000 oaks from acorns. To Henry Potts, esq. the large silver medal for planting 194 acres, with 328,246 forest trees."

I could, in addition to the above, adduce many instances of successful planting of forest trees in England, and the vast national importance that is there attached to their growth. The time may come when we also may be driven to the necessity of encouraging the planting of forest trees.—I have been informed by an intelligent officer who has been employed for some time past in getting timber for the navy, that to obtain the live oak frame of a single steam battery, he had to go over five hundred acres of ground. The resources of our country in this respect are immense however, when compared with those of our transatlantic friends; and the day I hope is far distant when we shall have to resort to such shifts as England and France.

But to return to my subject. The appropriation made for the gradual increase of our navy for eight years was eight millions of dollars, and it was required that for this sum, nine ships of the line and twelve frigates should be built, and the imperishable materials for three steam batteries be procured; and from present prospects there cannot be a doubt, had the appropriation been continued, that the whole would have been completed within the time limited, and for the sum appropriated. But it will be recollected that, at the last session of Congress, the amount was reduced from a million to half a million per annum, and time extended in proportion to the reduction of the appropriation. The report of the Commissioners, however, shows that the amount originally appropriated was sufficient for the object to be effected.

I will now take the liberty of making a brief comparison between our navy and the navy of France; and I am induced to do so, because some animadversions have latterly been made by the Minister of Marine, in his report to the French Parliament, with the view of raising the character of his naval administration at the expense of ours.—The same has been done in England—let this pass—but "*tu brute!*"

* In the Chamber of Deputies, on Monday last, the Minister of Marine, M. Portal, made a report upon the present condition of the French Navy, which contained some highly interesting facts. While the navy of the United States, observed the minister, consists of only 11 sail of the line and 14 frigates, demanding an expense of sixteen or eighteen millions of francs, the French navy, which comprehends 58 ships of the line, and 39 frigates, ought, with its collateral establishments, to be allowed for its maintenance above eighty millions. He added to this statement of the gross amount of the navy, the following detailed observations:

That a 74 gun Ship, which, before the revolution, cost about 1,200,000 francs, (50,000*l.*) could not now be built under 1,900,000*f.* (upwards of 70,000*l.*)

That the French models retain their former excellence.

That more than two thirds of the officers and pupils of marine, whose presence ashore is not indispensable, are actually now afloat.

That the French commerce and fisheries engaged about 50,000 seamen; while the royal navy which, previously to the month of June, 1820 had need of no more than 6,812, and even at the close of the year, found employment for only 7,743, is now, in the year 1821, manned by 10,736 seamen.

That the Maritime population is on the increase.

That in five years the mass of workmanship bestowed upon different men of war has been more than equal to the building of 14 74 gun ships.

That ten sail of the line, five frigates, and four sloops of war, have undergone a thorough repair.

That various important works in the Dock yards have been carrying on with assiduity, and with as much success as the limited funds assigned to the ma-

The French navy in ten years will, according to the statement of the minister, equal 38 ships of the line and 49 frigates. It is now equal to 51 ships of the line and 36 frigates; and the expense, at 13 millions per annum, will be 130 millions of dollars. This is the statement of the Minister of Marine.

Our navy in eight years can be augmented nine ships of the line and twelve frigates, and materials for three steam batteries procured, in addition to the old ships, at an expense of eight millions of dollars: and at this rate of increase, with the amount appropriated by France, (130 millions) its augmentation would be 144 ships of the line, 192 frigates, and the materials for 48 steam batteries. This estimate, you will observe, is for the gradual increase alone, and embraces only the million appropriated for that object.

For the current expenses of the navy, including repairs, the annual appropriation is less than two millions. This however shews the immense advantage we have over all other nations, and proves incontestably, that with less money, in the course of ten to fourteen years, possessing, as we do, the means of preserving our ships, we may render ourselves superior to any naval power on the globe.

The large amounts applied by the British and French to their respective navies, is wasted in the repairs of their rotten and illy constructed ships; which leaves little to go toward augmenting their navies, while nearly all of ours is expended in the construction of ships of the most durable nature, and of the most approved dimensions and properties.—Our ships require but little repairs—400,000 dollars in the present state of the navy is more than sufficient for that object, and the preservation of the new ships. Whether the extraordinary durability of our ships is owing to the quality of the material, or the manner of treating it, but for this investigation would be of no consequence, provided the advantage was on the side of our country. I hope, however, that I have shewn that something depends on the treatment of the timber; and that in so doing, I have afforded some useful hints to the farmer, for whom this is intended.

I have shown that the winter season is the most proper for felling trees:

That the moon has an influence on the sap; that attention should be paid to the annual or concentric circles; that salt is highly beneficial to the preservation of wood; and, that white washing with lime is very advantageous.

It now remains for me to notice another point, to wit: covering for preservation. Every Farmer will readily admit that wagons and carts, ploughs, harrows and every kind of farming implements, are better preserved under a shelter, than in the open air—the same may be said of ships; and no one will deny that the workmanship of these articles can be performed more advantageously in a comfortable workshop, than in the open air, exposed to all the inclemencies of the weather. The same rule will apply as well to the largest as to the smallest object—to a line of battle ship, as to a hay rake. But the author of the article in the Literary Repository before adverted to, differs in opinion.

The Navy Commissioners, in their report, after speaking of the advantages of covering our ships, as an effectual mode of preserving them, state, "that it is a very decided advantage, as respects workmanship, as well as materials. The artificers can always

make a full days work, at any season; and can perform more work in the same time, than they can do when exposed to the weather." On which the author of the article remarks, "that the latter of the observations just quoted, is not so clear"—to wit: "that the artificers can do more work?" "An experiment of building merchant vessels under a house, was made a number of years ago by an enterprising ship carpenter of our city. Now if it had been found that labor was saved in this way, it is probable that others would have imitated the example; but no such thing has taken place. It yet remains a solitary instance, though built more than fifteen years ago. Indeed many intelligent ship-wrights think that the reverse is the fact; contending that the open air is alone the place where work can be done to advantage—that the full light of day is necessary to the workmen—that those who work in houses, cannot commence so early in the morning, nor continue so late in the afternoon—that although in wet and rainy weather, the men are not compelled to abandon their work; yet, in such cases, it is oftentimes so dark within these houses, that the work is overlooked and slighted—and that in wet weather their time is not lost, for there is always employment for the men to prepare the materials for their places. We think there is much force in these arguments, and are inclined to believe that the advantage of building under cover, will not to say the best, be so great as is anticipated in the report."

Now to prove the erroneousness of his opinions on these points, it would only be necessary to compare the pay rolls of the Portsmouth and Boston Navy Yards with those of New York, Philadelphia and Norfolk, and it will be found that the difference in ship carpenter's pay is from twelve to fifteen per cent., and that there is a great difference in the number of days work on the same object; and this difference arises from the men being able to work all their time and at their ease, whereas where no such shelter is afforded them, a much greater loss is experienced both by them and the government, in consequence of the inclemency of the weather.*

With regard to the experiment, he alludes to, of building ships under cover in merchant yards, I can say that Mr. Eckford, "the enterprising shipwright" he mentioned, considered his house a great improvement, and was fully impressed with a belief that nearly all the expense of erecting it, was saved, the first ship he built under it. So long as he continued to carry on ship building, he continued to build under the house. He has built in his house some of the

* To put this matter to rest I have referred to the pay rolls of the Boston and Norfolk yards, for January, 1820, taking a northern and a southern yard, and a winter month.

At Norfolk, 109 men did 2281 days work; and the average pay was \$1 73 cents per day.

At Boston, 109 men did 2362 days work; and the average pay was \$1 31 cents per day.

These men were ship carpenters, and worked on the line of battle ships, building at the two yards—Those at Boston worked in a house—those at Norfolk, in the open air.

The difference of pay between Boston and Norfolk, is per man, 42 cents per day in favor of Boston, making in one month, the difference of \$922 04 cts. and the difference in the number of days work performed, is 81.—The difference per annum in favor of Boston, is \$11,908 08.—It requires three years to build a line of battle ship; and the amount to be saved by building under cover at Boston in that time, would be \$35,725 24 cents, which is more than sufficient to build a house. The house now over the ship at Boston, will no doubt last twenty years, or long enough to build six more ships under; and would, in that time, and at the same rate yield a saving of \$214,351 44; which sum is within three thousand dollars of the amount required to build the hull of a line of battle ship! I have taken two extreme cases to show the difference.

It is estimated also, that ships built under cover, are ten per cent. better than those built exposed to the weather.

finest ships that ever sailed out of the harbour of New York—some of them ships of war too—and is at this day a man of immense fortune, the fruits of his industry and economy—and this he owes in a great measure to the aforesaid house.

Mr. Eckford superintended the building of the Ohio line of battle ship at New York: and when her keel was laid, he urged the Navy Commissioners to build a house over her; but the funds of the Navy would not at that time justify the expense. The Board have since become so well satisfied of the advantages resulting from this mode of building, that they have commenced the construction, in all our building yards, of houses to shelter our ships and our workmen. The circumstance of Mr. Eckford's example, not having been followed in private yards, is not surprising, when it is known that the erecting one of these houses, costs from 12 to 20,000 dollars. An amount, which but few ship carpenters in our country, can spare from their capital for such an object.

The objection on account of darkness, does not hold good. The houses are sufficiently lighted in all their parts; and I will venture to assert that during the building of a ship under cover, the men enjoy more of the advantages of light, than when built in the open air: for, in the one case, the interior is finished before the decks are laid, with all the advantage of light from above. Whereas, in the other case, the light is excluded by the laying of the decks, a necessary precaution to the shelter of men, and the protection of their work from the weather. Much of the interior work of a ship, built in the open air, is done by candle light.

But let us see what other nations have done, and are doing.

The Venitians had covers for all of their ships—in consequence of which, they were always in good condition; and she thus became mistress of the seas.

The Russians, Swedes and Danes cover their ships with painted awnings. England is at this moment, building covers over all her docks and ships on the stocks; and France is following her example. We have heard of a Venitian ship of the line, remaining sixty years under cover on the stocks without decaying. In France we are informed by the Minister of Marine, that ten ships of the line then on the stocks—which had been there, uncovered, from seven to thirteen years, exposed to the inclemency of the weather, had been examined; and that there was every reason to believe that in consequence of their very decayed state, it would be necessary to abandon most of them, as unworthy of finishing—and that there were none whose durability could be estimated beyond ten years.

Mr. Ch. Dupin, a member of the Royal Institute of France, and superior officer of Maritime Engineers; a gentleman distinguished for his abilities, who had visited all the dock yards and arsenals of England and of the Continent, by order of his king; and who has published a highly interesting account of his journey, which has attracted the attention of all the world—this gentleman, has made the following statement, in a report on the progress of Naval Science in France, since the peace, read before the academy of sciences, March 27th, 1820.

"In the Port of L'Orient, a new shelter (*un abri nouveau*) more splendid and vast, than those which concealed the mysterious fleet of Venice, will permit at all times and in all seasons, the workmen to construct a ship of the line. Sheds or houses as spacious as commodious, but more simple and less expensive, will be erected by little and little, (*peu à peu*) over all the frames on the stocks. Thus, in time of peace, will be preserved, without deterioration, the half finished hulls of the ships of the state; and when the moment in which they may be wanted shall arrive, our vessels of war can be finished, launched and sent to sea in a few days, to seek a fortune, which we shall have during peace, strove to render successful."

Charnock, in remarking on the practice of the Venitians, and the cause of the great durability of the early built ships of England, observes: "As to the durability of shipping, and the means taken to preserve them, the former seems to have varied in its

extent as much as it has done within the last forty years, and probably owing to the same causes: the latter was conducted on that principle of keeping vessels dry, or secure, by some means or other, from the effects of the weather, which has never ceased to be practised but to the injury of the state, be the expense of the care and precaution what it might."

In a few words Mr. Dupin and Mr. Charnock, have expressed all that was necessary to be said on the subject of building under cover; and with them I shall close my remarks on the article in question, which I have been informed, since I have undertaken its examination, is the production of a gentleman highly and deservedly distinguished for his literary and scientific acquirements.

His intentions appear to have been of the most friendly nature, and I beg leave to assure him, that my remarks have been dictated by the same spirit.

Having shewn the deplorable condition of England and France, with regard to timber for naval purposes—a condition which their own want of foresight has produced—I shall endeavour, as far as my information will allow, to shew the condition of our country in this respect, and I think I shall make it appear that an absolute necessity now exists for greater economy in the use, and for means to be devised to prevent the destruction of the timber suited for naval purposes, if we hope to become permanently a naval power.

No one not acquainted with the subject can form an idea of the havoc that has been made, and is still making among our live oak trees.

Very respectfully,

Your obedient servant,

D. PORTER.

Rotation of Crops,

BY THOMAS MARSHALL, ESQ.

A Paper laid before the Agricultural Society of Virginia.

No. 1.

Oak Hill, Fauquier, October 14, 1818.

SIR—The reluctance manifested by practical agriculturists, to communicate written information on any of the various subjects which fall under their observation, has been a theme of general and very just regret. The example of many northern farmers, who have made useful contributions to their respective societies, ought not to be lost upon us; for in this way, perhaps, more than in any other, have improvements been generally diffused, and the acquisitions of individual skill been added to the common stock of useful and experimental knowledge.

In making the following observations, I have but little hope of suggesting any thing new or instructive; but I shall have the satisfaction of drawing the attention of the society to a subject of radical importance, and perhaps of eliciting observations from others more competent to do it justice.

Of late years, more attention, than formerly, has been paid in our state to a proper rotation of crops; but still, the subject has not been sufficiently regarded, and has been considered by too many as belonging rather to the theoretical, than to the practical and useful branch of agriculture. Such, however, does not appear to be the opinion of our society, and on this account, I feel the more encouragement to hazard the following remarks, on

"A rotation of crops, consisting of wheat, clover and Indian Corn."

The question which presents itself at the threshold of the enquiry is this; which of the grain crops abovementioned is most important to the farmer? So much depends upon soil, situation, and numberless other considerations, that no general answer can be given. Each farmer can determine readily for himself, and upon the result of his determination will depend in a great measure the propriety of any system he may adopt. Upon very light soils, or on lands lying in the vicinity of towns, or on the banks of navigable streams, a farmer may do well to cultivate a considerable part of his land annually in corn:

but where these circumstances do not exist, it is certainly unwise to raise more corn than is deemed adequate to the supply of the farm itself. In this section of the country, wheat, grown upon fallowed land, is in every view the most important crop; and to lands of similar situation only, are the following remarks applicable.

Having premised these observations, I will now suppose a farm containing five hundred acres of arable land, and consider into what number of fields it can most advantageously be divided, and by what course of crops those fields can most profitably be cultivated.

To arrive at a just conclusion, it would seem necessary to consider in succession the different modes which may be adopted, and to point out the following advantages and disadvantages incident to each. To say nothing then of the old system of three fields with the course of cropping consequent upon it, the evils of which are but too apparent; let us suppose the farm divided into four fields of 125 acres each. The first objection to this division is, that by far too large a proportion of the farm will be devoted to the culture of corn; the second, that too much labour will be required; the third, that no ground will be left for fallow. The last objection may indeed be obviated by cultivating annually three fields out of four, and making the crop of corn intervene between the two small grain crops; but few farms could sustain so impoverishing a course, and the rapid deterioration of the soil would soon prove this rotation to be as improvident as the old system of three fields. The only advantage which this division enjoys over others remaining to be considered is, that it requires less cross fencing; but as every one knows that land is pastured by all kinds of stock, with the greatest benefit to themselves and the least injury to the soil, when they can be frequently shifted from one field to another, no farmer will be disposed to forego this advantage, and have recourse at the same time to an exhausting course of crops, for the sake of economy in fencing. On the contrary, if he should find by increasing the number of his fields, that he will at once improve his resources for grazing, and augment the quantity of the most valuable grain, he will spare neither trouble nor expense in the collection of materials for that purpose. In this section of the country, a practice prevails very generally among the farmers who have made sufficient progress in the improvement of their lands, of purchasing in the summer or fall of every year, poor cattle, which are driven from the western and north western sections of this state, or from the adjoining states: keeping them during the winter upon the offal of the grain crops, with the occasional use of hay; fattening them upon grass in the ensuing summer, and selling them to the butchers, who come from the sea-port towns to purchase them. This trade, if it may be so called, has heretofore been a gainful one, and beneficial to the community at large. It enables the grazier to turn to good account the grass and hay with which his farm abounds; to manure his fields extensively; and at the same time to prepare them in the best manner for the plough. This last advantage cannot be properly estimated by any but those who have attempted to turn in a heavy crop of clover and blue grass with a small admixture of weeds, as a preparation for a crop of wheat. No crop, perhaps, depends more for its success, upon nicety of cultivation; and the ground cannot be properly prepared unless those obstructions be removed by grazing or by mowing; of which the former is by far the more convenient and profitable mode.

Suppose, in the next place the farm to be divided into five fields of one hundred acres each. There are two rotations suited to this division, which, supposes the same quantity of ground allotted to corn, and the same quantity to wheat, in each; but the arrangement of the crops is different. The first is as follows:

1st. corn; 2d. wheat; 3d. clover; 4th. wheat; 5th. clover. The second, which is generally adopted in this part of the country, is this:

1st. wheat; 2d. corn; 3d. wheat; 4th. clover; 5th. clover. The latter mode is preferred because the corn is planted on stubble ground; which is allowed to be

a great advantage, although by no means peculiar to this system. Both courses are esteemed, because corn occurs sufficiently often to clean the land without impoverishing it; and either may be adopted where circumstances render the cultivation in corn of so large a portion of the land, as one fifth, necessary or profitable; but where these circumstances do not exist, the farm may certainly be cultivated with less labour, particularly manual labour, and greater profit to the proprietor, if the quantity of ground devoted to corn be diminished, and that allotted to fallow proportionably increased.—With five fields such a change cannot take place, for one or the other of the above courses must be adopted; unless indeed only a part of a field should be cultivated in corn at a time, in which case a very long period must elapse before the other part would come into corn; and thus one of the principal advantages ascribed to the five field system would be lost.

Let our farm be now supposed to be divided into six fields of eighty-three and a third acres each, and a greater variety in the mode of cultivation presents itself. I shall notice but two rotations. The first, which is generally recommended, is the following:

1st. corn; 2d. wheat; 3d. clover; 4th. clover; 5th. wheat; 6th. clover. One advantage which the six field system is thought to possess over all others is that it furnishes the best period for the return of the corn crop, so far as the proper cleansing of the land is considered; but, according to my experience, one sixth part of the land is more than enough for corn, and entirely too little for fallow.—The above course is faulty in this respect; that the corn is not planted on stubble ground; an error which may be corrected in the following manner:

1st. wheat; 2d. corn; 3d. wheat; 4th. clover; 5th. clover; 6th. clover.—But this course is liable to another objection, that the ground lies too long in clover at a time, and by this means must become full of troublesome weeds, and present serious impediments to the plough when the time for breaking it up recurs.

An excellent modification of this system has been adopted by Thomas Turner, Esq. of this county, which avoids both the errors just mentioned, and admits annually the fallowing of two fields out of six. This is effected to sow small grain among the corn, and reserving the field for fallow in the ensuing year; but I regret that I am not sufficiently acquainted with the details of the plan to give you a more satisfactory account of it.

The next system in order is that of seven fields; in which case each division of the farm will contain 71 3/7 acres. Two courses may be selected as applicable to this system.

1st. corn; 2d. wheat; 3d. clover; 4th. wheat; 5th. clover; 6th. wheat; 7th. clover.

1st. wheat; 2d. corn; 3d. wheat; 4th. clover; 5th. clover; 6th. wheat; 7th. clover.

The first of these is the preferable mode except that the advantage of planting corn on stubble ground is lost. Both are valuable courses, and highly to be recommended where circumstances render it necessary to have as much as one seventh of the land in corn. The only objection to which the seven field system is liable, is this: that it does not admit the maximum of fallow of which the farm is susceptible.

Let us, then, in the last place, suppose the farm to be divided into eight fields of 61 1/2 acres each, and the rotation to be adopted will depend in a great measure upon the condition of the farm, and upon the comparative profits of grass and grain. This division admits of important changes in the rotation of crops, without the alteration of cross fences; and the farmer may proceed from a lenient course of crops, in which only two fields are annually fallowed, to one in which greater demands are made upon the soil. In either case, one field only is allotted to corn, a great portion of which may be manured, and the produce will be found sufficient to supply all the wants of the farm. For let us suppose the average produce of the corn field to be six barrels per acre, the crop will amount to 375 barrels; an ample supply for the labour necessary to cultivate that quantity of ground in corn, and to fallow three times that quantity for wheat. Should the profit on stock be found more considerable than that arising from the culture of wheat, less labour

will be required on the farm, and there will be a surplus of corn.

The first course applicable to this system is as follows:

1st. wheat; 2d. corn; 3d. wheat; 4th. clover; 5th. clover; 6th. wheat; 7th. clover; 8th. clover; yielding four grain crops, two of which are upon fallowed land, in eight years. A variety in the course might be suggested, by supposing the corn to be planted on clover ground instead of stubble; but as this would not change the number of grain crops in any given year, it is unnecessary to do so. The second course, designed for a more improved condition of the farm is this:

1st. wheat; 2d. corn; 3d. wheat; 4th. clover; 5th. wheat; 6th. clover; 7th. wheat; 8th. clover: yielding five grain crops, three of which are upon fallowed land in eight years. Consequently 5/8ths of the farm will be annually in grain until the termination of harvest; and as it would probably be found necessary to break up one of the clover fields before that period, it is apparent that this course is less favourable to stock than the preceding, and must be discontinued so soon as wheat shall become the less valuable article. That many farms in this state are able to sustain this course of cropping, will be evident by comparing it with the system of five fields, which is in general use. In the one corn, the most exhausting crop, occurs but once in eight years; in the other, once in five; while the quantity of ground annually cultivated in the first, exceeds the quantity annually cultivated in the last, only by one fortieth of the whole, or two and a half per cent.

With a view to test the comparative profit of the different courses referred to in these remarks, we will suppose, that in each instance every acre of ground shall produce six barrels of corn, valued at three dollars per barrel; every acre of fallowed ground, twenty-two and a half bushels of wheat, estimated at one dollar and twenty-five cents per bushel; and every acre of corn ground, fifteen bushels of wheat, estimated at the same price.—The fallow crop is fairly stated at 50 per cent. more than the corn ground. I have generally found it to be nearly double. The result will be as follows:

| No. of fields. | Bbls. of corn. | Bush. of wheat. | Proce. ds. |
|----------------|----------------|-----------------|------------|
| Four | 750 | 1875 | \$4503 75 |
| Five | 600 | 3750 | 6487 50 |
| Six | 500 | 3125 | 5406 25 |
| Seven | 428 4/7 | 4235 2/3 | 6642 78 |
| Eight | 375 | 3750 | 5812 50 |
| | 375 | 5156 1/4 | 7570 31 |

From this statement it would seem, that the gross revenue derived from cultivating the farm in the manner last proposed, exceeds that arising from any of the rest, supposing every article to be converted into its equivalent in money; but, when it is recollected that corn is by no means so saleable an article as wheat, that more hands are required to make it, and of course more mouths are ready to consume it; and that the economy observed in using it is always in the inverse ratio of the quantity made; the system of eight fields must be allowed to have a still greater advantage over the rest than would appear from the above statement. Again, when the corn field is large in proportion to the residue of the farm, no farmer in this section of the country could sow wheat upon it in due time without a material abridgment of his fallow, or a considerable augmentation of the labour employed upon his farm. Four men, with as many harrows, and three horses to each, can put in one hundred acres of fallow ground prepared for seeding in four days; whereas twelve ploughmen cannot do as much upon corn ground in the same time: And as the time for seeding is much circumscribed by the Hessian Fly, a strong argument is derived from this consideration in favour of any system which admits of the most expeditious seeding, and of course the greatest proportion of fallow.

In the foregoing observations on the various systems, no notice has been taken of a difficulty, common to them all, that provision is not made for a supply of hay for the use of the farm. Unless the farm should possess the advantage of a sufficient quantity of mea-

dows in addition to the arable land, this difficulty will be sensibly felt; and in those systems which require but few fields it would probably be found necessary to make temporary subdivisions, or to have permanent lots for the purpose of supplying hay. The quantity of ground required for this object, on well improved land, is not considerable. In a farm of five hundred acres, twenty or twenty-five would be sufficient. In the system of five fields, therefore, by way of example, too great a sacrifice of pasture would be the consequence of devoting an entire field to the scythe, and it would be found desirable, if not necessary, to enclose a part of it, a resource not only for hay, but clover seed. In the system of eight fields, if the first mentioned course be adopted, less difficulty will be experienced than in any of the rest, because the number of fields in grass will allow the use of any one of them for these purposes, or such a portion of it as may be required, without material inconvenience. Should the second course applicable to that division of fields be adopted, the inconvenience may be remedied, without a temporary fence, in this manner: instead of fallowing the whole of the field in the eighth year for wheat, leave twenty-two and a half acres unbroken, and forty acres of it only will be in wheat in the ensuing year. The part remaining in clover will furnish an adequate supply of hay and clover seed, and the proceeds may be safely stated to be the same in value as if the produce had been wheat. The year afterwards, the whole field will be planted in corn, and I would suggest the propriety of sowing only so much of it in wheat after the corn, as had been pretermitted in the preceding fallow. This part of the field having been less exhausted, might, with the aid of careful cultivation be made to produce a very profitable crop. The residue of the corn ground may be sown in rye; and when it is recollected that the rye crop can be put in with much greater expedition than wheat, (cultivators answering the purpose of ploughs,) the greater latitude is admissible in the time of sowing it, and much less expense in securing it at harvest; the actual profit will be found nearly the same as in the preceding statement, and the trouble considerably less.

But I should be strongly tempted to abandon the practice of sowing small grain of any kind upon land just released from the exactions of a crop of corn, and forego immediate profit for the more durable advantage derived from the greater improvement of the soil, if I could be satisfied, as assured by some, that clover will succeed when sown upon corn ground, without the aid of what is called a sheltering crop.* An experiment of this kind would be most likely to succeed upon ground previously harrowed: and should it prove satisfactory, the system of eight fields would appear under a new aspect. Not more than one half of the land would in any case be occupied, in any given year, by grain; and not more than one eighth by corn. From the greater proportion of fallow, the gross profits accruing to the farmer would be scarcely inferior to those derived from the cultivation of three fifths or four sevenths of his land, while the expenses attendant upon it would be considerably less; every operation of the farm would be conducted with ease and satisfaction to the proprie-

*The following method is recommended by Mr Farrow, a member of our society and a farmer of high reputation, when it is wished to avoid a crop of small grain immediately after corn, and at the same time ensure the growth of clover. In the spring after the corn is taken off, sow oats, at the rate of one half bushel or three pecks per acre; harrow them in with heavy harrows, and upon the ground thus prepared sow clover seed and plaister. The oats will be a fine pasture about June, and should be fed on just before they would come into head. Let the stock be then taken away, and the oats will spring up again. The field may then be pastured a second time when the oats and clover mixed will furnish a rich repast. The next year no oats will appear, and the clover will enjoy exclusive possession of the soil.

tor: and his profits annually increase with the increasing value of his land.

I am, respectfully, your obedient servant,

THOMAS MARSHALL

Dr JOHN ADAMS, Secretary
of the Agricultural Society of Va.

*Remarks on his own system, and description of a
Coulter Plough—by Thomas Marshall.*

OAK-HILL, Fauquier, Aug. 28th, 1821.

Mr. Skinner—In forwarding the preceding essay on a *Rotation of Crops, &c.*, I cannot but express acknowledgements for the manner in which its republication has been requested by yourself and Mr. Minor.

This gentleman, in whom I am happy to recognize an early friend, expresses a desire to know "the details, and the success of my eight field system." A long series of years would be requisite to enable me to speak with certainty on this subject. The opinions of all farmers, and their deductions, even from matters of fact, receive so deep a tinge from theories on which they have permitted themselves to speculate, that the conclusions at which they arrive, must generally be received with some allowance.—Time must add his sanction, before they can be implicitly received. At present I can safely say that nothing whatever has occurred to change my opinions on the propriety of adopting a rotation requiring eight fields, in preference to any other, on a farm where one eighth will yield a sufficiency of corn, and where there exist those inducements to fallow, which are noticed in the essay. It is true I have been prevented by several causes, which it were needless to specify, from following three fields per annum, which I considered as the *maximum* of the fallow crop; and it is possible that insuperable difficulties might have occurred in *practice*. At the same time I am convinced that there is no other system which admits so large a portion of fallow, although it may not be desirable to adopt it in full extent, unless the price of wheat should justify the sacrifice of ordinary considerations. Whenever such an inducement shall occur, a farm of eight fields may be cultivated, without any new arrangement of fences, in a manner calculated to yield the greatest increase of wheat; and in the mean time a rotation may be pursued, which is at once calculated to ameliorate the soil, and to yield an abundant recompense for labor.

My farm contains about 580 acres of arable land; and I find that an eighth part yields me an ample supply of corn. The produce may be safely stated at an average of six and a half barrels per acre. This year, in consequence of early planting, &c. I estimate the crop at more than seven barrels. This, in addition to the crop of rye and oats grown on corn ground, enables me to feed my horses and fatten my pork without difficulty. Twelve horses are required to do the necessary labour of the farm, though more are desirable, and in fact are used. We find abundant employment for them about seed time. The number of men and boys, pretty constantly employed, amount to 15; a woman and girl contribute their labour in the warm season. I find twelve work oxen, a powerful auxiliary to my teams, and use them during the summer for carting in grain, &c.; in the fall for breaking up corn ground, and other purposes. The proportion of corn ground, seeded in rye and oats, does not exceed one half.

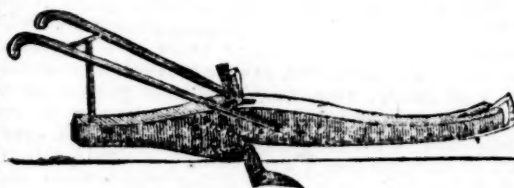
In regard to the preparation for wheat, my plan is to break one field before harvest; selecting that which has the most blue grass. This can be easily effected by two ploughs drawn by three horses each—After harvest, the other field may be followed by the same force, before the tenth of September; and as the ground generally becomes very hard in August, I have had recourse to a mode of obviating this difficulty, which is at once so efficacious, and so practicable by every farmer, that I cannot omit this opportunity of recommending it to public attention.

In lieu of a plough, one of the hands is furnished with a coulter. With this, a track is made for his companion, who follows with a plough, and completes

a furrow of six or seven inches deep and fourteen or fifteen inches wide; with such little labour comparatively, that two horses might execute the work with a plough of proper shape and dimensions. But as three horses are required to the coulter, I think it proper to use six for the double operation, and to alternate the labor. The coulter is never more than one round in advance of the plough; and the off horse in either team, walks in the furrow. The effect produced by this distribution of the labor is wonderful. The horses move with a brisk step, nearly two miles an hour; are seldom interrupted; and show manifestly that they are much less fatigued than when each team is required to perform the entire operation. From repeated observations, I have satisfied myself, that the six horses, employed in this manner, can execute at this season, nearly, if not quite, two acres per diem of perfect ploughing, upon land which I formerly regarded as almost impenetrable. Accident led to this improvement; and I claim no other merit in the business, than persisting in a novel experiment, in despite of the difficulties by which it was at first attended.

It should be observed that in both coulter and plough, the horses work abreast, and are attached in the same manner. A description of this manner may be found in the "American Farmer," having been given in a letter to Mr. Jeffreys, and fully illustrated in an editorial note. To most of your readers, who have occasion for three horses to a plough, the mode has probably been long familiar.

The construction of the coulter is of so much importance, that I may be excused for giving a description of one, which has been found to answer perfectly.



The beam is made of a forked limb, about the size of a large plough beam, shaped in such a manner, that the back of the coulter may have a firm support; the length of the beam, six feet six inches, and the greatest width, twelve inches. The coulter mortice is cut about four feet from the end, to which the clavisse is fixed. To prevent the coulter from shifting to either side; the back of it is let into a groove in the lower part of the beam just below the mortice. This groove is faced with a strap of iron to prevent the back of the coulter from wearing it. In the shank of the coulter, several holes are made, through one of which, when the proper depth is decided, an iron pin (secured to the beam by a small chain) is put to prevent the coulter from being driven upward. In addition to this, a wedge, driven through the mortice, in front of the coulter, effectually secures it. Two handles, fixed in the same way as those belonging to a shovel plough, complete the implement. Several rivets may be necessary to prevent the beam from splitting. I had forgotten to observe that the bottom part of the beam, where it comes in contact with the surface of the ground, should be faced with iron, and should be made as broad as the thickness of the stuff will allow.

I have said that the following of the second field may be completed by the 10th of September. Experience has taught me, that it should be completed by that time, as the *Smut* is apt to make its appearance on land broken afterwards. Before the arrival of this period, it is necessary to commence crossing the first field; for should this be foul at seed-time, a full crop need not be expected. In general, this operation may be effected, especially if the summer growth has been fed down, by double shovels, drawn by one or two horses, according to the nature and condition of the soil. That portion of the field, which was broken up at a very early period, will probably require the bar-share—it would be practicable to plough more than one field before harvest; but it is not desirable

on account of the pasturage, especially, as the delays incident to hay-making, gathering clover seed, &c. retard the time of turning stock into the stubble fields.

I have thus endeavoured, as concisely as possible, to answer the enquiries of my friend, Mr. Minor. Allow me now to notice two objections to the "eight-field system," which have been frequently suggested. First: Three consecutive crops, must unavoidably impoverish the soil. I have not found this to be a fact. That they reduce it, is true; and the third crop of the series is comparatively light; but there is an advantage gained of such paramount importance, as to more than balance this inconvenience. The soil is so thoroughly cleansed, and put in such fine order for the reception of the seed, that a failure of the clover crop, rarely occurs. The restoration of the field to its accustomed vigor is astonishingly rapid. My soil, it should be remarked, is for the most part, a light loam; replete with fragments of stone; very compact, and at the same time very friable;—compact before it is broken by the bar-share, and easily pulverized afterwards. Secondly—An objection is made to the expense and labor of enclosing eight fields; no doubt this is a serious, and in some cases, an insuperable difficulty. For my own part, I think the advantages of the system, such as to countervail the objection where it is surmountable. I should find much greater labor and inconvenience in the annual cultivation of more corn than necessary, and sustain greater loss by the fallowing of a smaller portion of my land. There is, however, one mode of obviating the difficulty, which I will suggest; at the same time observing that I would prefer a separation of each field from all the rest. If the farmer be content to fallow only two of the eight fields per annum, four enclosures are sufficient; as may be seen by an inspection of the following table, where No. 1 and No. 2, constitute one field A without a dividing fence; No. 3 and No. 4, another field B; No. 5 and No. 6, a third field C, &c.; so that it is perfectly practicable to carry on a rotation requiring eight fields or subdivisions, on a farm with only four enclosures. One of these divisions may be wholly devoted to pasture before harvest, and the half of it broken up afterwards.

| Years. | A | | B | | C | | D | |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1821 | Wheat | Corn | Rye | Clover | Clover | Wheat | Clover | Clover |
| '22 | Corn | Rye | Clover | Wheat | Wheat | Clover | Clover | Wheat |
| '23 | Rye | Clover | Clover | Wheat | Clover | Clover | Wheat | Corn |
| '24 | Clover | Clover | Wheat | Clover | Clover | Wheat | Corn | Rye |
| '25 | Clover | Wheat | Clover | Clover | Wheat | Corn | Rye | Clover |
| '26 | Wheat | Clover | Clover | Wheat | Corn | Rye | Clover | Clover |
| '27 | Clover | Clover | Wheat | Corn | Rye | Clover | Clover | Wheat |
| '28 | Clover | Wheat | Corn | Rye | Clover | Clover | Wheat | Clover |

In the first year, No. 7 and No. 8, may be pastured before harvest: No. 8 to be fallowed after harvest; in the second year, No. 3 and 4 will be pastured in like manner—in the third year, No. 5 and No. 6, &c. &c.

Respectfully, your's, &c.

THOMAS MARSHALL.

FOR THE AMERICAN FARMER.

FLAX DRESSING.

WHEN I first promulgated the account I had received of the English practice of *dressing flax*, on the *dry system*, I published all the information I had, merely as a subject *worthy experiment* by us; and with no confident persuasion of its suitableness in our country, or the infallibility of the process. I left, as was most decorous and prudent, the decision to my agricultural fellow citizens; possessed, as they were, of all the intelligence I had. Having

communicated the subject to *The Philadelphia Society for promoting Agriculture*, that society took the matter up with the zeal it always evinces for the public prosperity. It must be recollected, that its views were never extended further than obtaining the small machines calculated for farming families. That invented by *Bundy*, was the one whereof we had the most direct information, as fitted for our object; though there are several others, and probably some superior to it. Every effort was made for its importation; but it could not be obtained. The society procured a small machine to be made here. That machine is complicated, and not so satisfactory as was anticipated; though it is an ingenious piece of mechanism. It cost forty-five dollars. It will break, with a man and a boy to work it, forty pounds per day, of unrotted flax; and was sufficiently efficient to prove the practicability of the dry process.

Having heard, that in *England*, neither the machines, nor the system, received the encouragement expected in the outset, I took measures for obtaining the true state of the facts, concerning both the machines and the practices. I accordingly wrote to several intelligent correspondents; but have received an answer from one only. *Mr. Holdich*, who writes the letters whereof the following are extracts, is the able and well informed editor of the *British Farmers Journal*—a paper of merited celebrity. He is in a situation to know, more than most others, the general state of all subjects connected with Agriculture. I had pledged myself to give what information I, from time to time, received; having no desire to lean against, or overweeningly to cherish, any candid representations, either favourable or otherwise, to the very important object. My own opinion of the practicability, and the highly beneficial uses of the machines and system, is not changed; although I find *Bundy's* machine is only used for small operations by gratuitous or cheap labour. He writes, in a letter transmitted by *Mr. Holdich*, that he has invented a large machine, moved by steam or water power, which he is confident will answer the purpose on an extensive scale; and measures have been commenced to obtain the advantages of it. The specimens sent by *Mr. Holdich* are irrefragable proofs of the superiority of this mode, over the old practice. But if the whole of the means to effect the dressing intirely, according to the new system, cannot be obtained; or if it be found, on fair experiment, that the expense forbids the use of the whole of the new practice; such parts may be adopted, as circumstances permit. There is no doubt of the superiority of *steeping*, over the hazardous, dilatory, and uncertain mode of *dew rotting*. For *steeped* flax, 50 per cent. beyond the price of that *dew rotted*, has been given by a large manufacturer.

It seems that *Sir John Sinclair*, most probably taking his bias from some large manufacturers, who, from the beginning, have discouraged the inventors of flax machines; and reluctant farmers, wedded to old customs, writes unfavourably to the success of the new system. But, intelligent, estimable, and worthy of confidence as he is, *Sir John* may be, as he has been,

operated upon by the prejudices of his informants. In the first edition of his valuable *Code of Agriculture*, he decisively condemns the *Drill Husbandry*. But, subsequently, at *Mr. Coke's* *Holkham Sheep Shearing*, convinced by facts, and out-reasoned in argument, he, with becoming candor, acknowledged that he had been in error. It is to be hoped, that, in relation to the flax dressing, he may have another opportunity of laudable recantation. As to *British farming prejudices*, they have long been proverbial. *We know* the value of our *scythe* and *cradle*. Yet, so obstinate are the prejudices of *British* labourers, and common farmers, that a spirited and worthy agricultural friend in *England*, to whom I sent a complete implement, some years ago, cannot prevail on his own hirelings, or his neighbouring farmers, to use it. It is no wonder, that more important implements should be reprobated.

Sir John Sinclair, however, very justly recommends *steeping* in preference to *dew rotting*; and observes that it may be accomplished in our climate in a shorter time, than the *European* climate permits. This has been recently proved; and has been long known to me. In *England*, ten or fifteen days *steeping* is necessary; but, with us, one half the time, and often much less, is required. *Dew rotting* is not to be regulated by human means; as it depends on circumstances we cannot control. But *steeping* is under our own command; and can be managed, with prudence, care, and attention, according to our will.

I am persuaded by evidencing the results of some experiments, that *boiling* the flax, either from the brake or swingle, will facilitate, if not complete, its *bleaching*. For household manufactures, (all I aimed at) soap-suds, with a little addition of lye, would be amply sufficient. In large establishments, steaming, and the use of the muriatic and oxy-muriatic acids, whereof the muriate of *potash*, (a stronger alkali than necessary in small concerns) is a component part, will, no doubt, be continued.—*Bleaching*, in this and other modes, is a *business* in *England*; and, most probably, *Bundy's* bleached flax, which superseded this branch of the trade, was one of the objections with large dealers, who would not pay, in the price of the article, the reasonable expense of *bleaching*, by *boiling* precedently to *spinning*. This must be done in small parcels; and the exact mode requires some experience. But when it is considered, that one fourth more of the article is gained by the new process—all expense and labour in *boiling*, and other operations, is far overbalanced; and this could be materially lessened in large concerns. A *Farmer* has his ashes for soap and lye, sufficient for his purposes. *Bundy's* *boiling* and *bleaching* is more tedious and complex, than other practioners, or the system require. *Salisbury* alleges, that washing, faithfully, in strong suds, is sufficient. And, so it appears, in the report of the *British* committee of the House of Commons, in relation to the subject of *Flax Machines*.

Even agricultural associations can do little; unless spirited individuals, unprejudiced and unappalled by discouragements, assist them. If individuals will not risk the expense of Ma-

chines, agricultural societies, now patriotically numerous, should apply themselves to this object; than which nothing can be more worthy of personal exertions and pecuniary aid. There is no cause for discouragement forbidding to American enterprise and zeal, in prosecuting, at no formidable expense, experiments on a system so evidently superior to the old practice. The cost of a small machine is about five guineas; and one would serve several neighbouring farmers; who could jointly afford even a much higher price.

Bundy's specimens are all inviting. But the No. 4 is in whiteness, equal to any, and superior to most bleached fabrics I have ever beheld. It is soft as silk; and capable of being woven into the finest webs.

I do not regret the instrumentality I have had in attracting the public attention to this subject. Although my well intentioned endeavours, aided by more competent auxiliaries, have not been crowned with complete success, important benefits have already appeared; and great improvements on the old mode have commenced. Among them is a *Brake* and *Scutcher* for *steeped* flax; which promises, in its performances, to exceed any *British* machines. Notwithstanding that *British* prepossessions have been transplanted here; American genius may yet accomplish the perfect preparation on the dry system; or, by *steeping* in place of *dew rotting*, and other improved operations, facilitate our highly momentous pursuit.

Whitney experienced as much mortification and harsh treatment, when he introduced his *Cotton-gin*, as *Bundy*, or any other inventors of machines can suffer. And yet *Whitney's* invention has triumphed over all prejudices,—greatly enriched individuals,—and incomputably increased the public wealth and prosperity. Aided by persevering and patriotic agriculturists; and, it is to be hoped, by liberal and enlightened manufacturers, some ingenious mechanist may furnish every thing we desire. No doubt every calculating inventor will contemplate machines simple, cheap, readily repaired, and easily worked, for farmers. For more extensive operations, it is not to be expected but that they must be more complicated and costly.

At the request of some members of the *Philadelphia Agricultural Society*, *Mr. Whitney* has the subject under his consideration. Should he turn his attention to it, and produce a *Flax Machine* equal to his *Cotton Gin*, he will doubly entitle himself to the gratitude of his country.

Mr. Holdich's account of *Bundy's* discouragements, is truly lamentable. But he, by no means, deems them objections to the principles of the system, or the efficiency of the practice. He is to make inquiries into the state of things in other quarters, where larger and other machines are used; and inform me of the result. He mentions *Bundy's* improved machine, as one likely to gratify our wishes.

I send parts of the samples transmitted to me; that those who choose to inspect them, may judge for themselves of their quality.

RICHARD PETERS.

Belmont, Aug. 30th, 1821.

Extracts from Mr. HOLDICH'S Letters—June 6th and 7th, 1821.

"We have had much to do and say about the new process for dressing hemp and flax, which has certainly not met with that encouragement which it deserves—and even now that the marketable stuff prepared for spinning is offered; the linen manufacturers will not give a price for it, even according to its relative value;—that is to say—being *ready bleached*, this saving ought to be allowed for; and being perfectly discharged of its mucilaginous parts, and stronger withal, there is less waste. This case resembles that of English merino wool, for which the manufacturers never would give the value; either because the quantity offered was no object, or because the owners had no other market. All new things experience similar difficulties. From the time that this new mode took its rise, there has been some controversy between the claimants to its invention; and much alteration in the machinery, and *modus operandi*. It is at length brought to a most simple and effective process; but the machines (Bundy's) are worked only by children and young persons." This he considers only fitted for Bettering houses and for the improvement of Prison discipline, converting involuntary labours into some certain profit, and "affording to the public, a material of admirable quality."

"As soon as I received your letter, I went over to Bundy's manufactory to pick up such information as might be satisfactory to you. I was sorry to observe very little was doing. This person I believe was the inventor of the effective implement which will immortalize his name; but honour is likely to be the best part of his reward." "He was not at home; but his foreman gave me the enclosed specimens; and told me that the expense of bringing it into the white dressed state, is 6 per cent. including boiling and washing, which is all the *bleaching* required." "No. 1. is the flax as it comes from the Brake, or Bundy. No. 2, is the same dressed coarsely for boiling. No. 3. is a specimen, boiled and washed, having been put thro the Bundy again, to loosen the texture, and disengage the Sordes of the husk, technically called the *baste*. No. 4. is the flax perfectly prepared, being dressed again, ready for spinning. It is not to be forgotten, that this process obtains nearly one fourth more of good flax, than the dew rotting mode; and the stuff much stronger. Specimens of *Paper*, I have seen made of it, almost as strong as parchment; and linen of prodigious strength."

"Flax with us is scarcely ever *dew rotted*; but tied up in sheaves, (and when pulled green and sappy, the sooner it is steeped the better) after it is rippled for the seed, and *sunk in water* for about 12 or 14 days. They know by handling, when it is enough. It is then taken out of the water in the same order it was put in; and spread on grass land to dry; and receive the rains, to wash out the black stain it gets in *dyking*. When pretty dry, it is again tied in sheaves, and set up; and in fine weather stacked for breaking. That which Bundy uses is tied in sheaves as it is rippled; and *saved as dry as it is possible*. When broke they spread it in the sun; or in winter *fire dry* it—

as I have seen your farmers do theirs, which has been dew rotted, to make it work the better. Your flax, when treated with *dew* only, and broke the common way, is tender and short; besides being half washed into *tow*."

"You should make *pits** for *steeping*, where you can take in or let out the water by the river or creek adjoining."

"It is true, and very important, that flax, with you is spoiled by the *dew rotting*; which you rightly call a '*dangerous process*.' I have seen it lifted from the ground, about *Pittsburg*, quite spoiled; and your people would do well to consider what I have said before, about *steeping*. A little practice would instruct them in the necessary knowledge. The time when it is enough, is determined by the *feel*;—as the stalk becomes a little slippery; and the outer bark (*baste*) is removed by a slight rubbing. It is then taken out, and spread only for a few days." [But it must be spread immediately out of the pit; for if it lies in heaps, it will heat and ferment.]

R. P.

"In all this there is *no danger*; and you may know by the Irish linen you import, that it makes fine and beautiful cloth."

Mr. COKE, (Mr. Holdich mentions) does more good than any body, by early implanting industrious habits in the families of his labouring cottagers and inferior tenantry; in place of pecuniary largesses to idlers; which encourage immorality and perpetual penury, under a misapplication of the hallowed name of *Charity*. He "has ordered some of the *Bundies* into operation among the poor children of the village of *Holkham*; who have broken and spun the flax grown in *Holkham Park*. It was spun and wove *unboiled*; making excellent home-spun sheeting, that will last a long life. It will wash quite white in a short time."

* The pits or vats must be distant from any dwelling; as the effluvia are not healthful. Some cover, with weights, must surmount the flax, whilst *steeping*, to keep it compact and fermenting. Poles with stones for weights are sufficient. The pits should have clean and sound bottoms; they should be 3 or 4 feet deep, longer than wide, and so situated as to be drained. To avoid packing, in large concerns, too much flax in one pit, the number had better be multiplied.—Yet I have seen a vast quantity steeping in the ditches of reclaimed meadows. This is called *dyking*. But the flax is thus more subject to contract a filthy cover, and dusky colour, requiring longer spreading, for rains to wash off the feculences.

R. P.

FOR THE AMERICAN FARMER.

COCKLE seen growing on the meshes of the WHEAT-EAR.

J. S. SKINNER, Esq.

A farmer of considerable intelligence and observation, has assured me, that he has seen the seed of the Cockle, growing in the meshes of the Wheat-ear. The circumstance excited my surprise in no small degree, as this is contrary to the general laws of vegetation. The cuckoo, it is said, dispossesses the hedge-sparrow of its nest, and appropriates it to the rearing of its own young; but, in no other instance than the present, with which I am acquainted, except in the case of the Mistletoe, does one

plant depend on another for sustenance, and the propagation of its kind. In looking over the *Scot's Magazine* for 1778, in page 63, I find an account of the cockle, which corroborates the above. I have copied the article entire, and should be glad to see it in the *American Farmer*.

Your's respectfully,

BENJAMIN COLMAN.

Spotsylvania, Va. 1st Sept. 1821.

EXTRACT.

"There is a troublesome weed very frequent among corn, on light lands, called *cockle*. Of this there are two kinds; the one blows with a pale-red blossom, and has its seeds inclosed in a pod or husk. This plant is very prolific, bearing a great abundance of these pods, each of them containing from twenty to thirty seeds, which are about the size of the turnip-seed, quite black without side, but the flour as white as that of wheat. The other species of the cockle bears a seed rather smaller than the former, and possesses a very peculiar method of vegetation, being found within the wheat-ear, one side of which has its chests filled with wheat, and the other with this weed, which from hence has obtained, among the husbandmen, the significant appellation of *ear-cockle*. This, though far from being so common as the first mentioned species, I have frequently seen, and is thought, among the farmers, to be occasioned by bad husbandry, whereby the land is exhausted of its nutritious qualities, and so far deprived of its strength, as to be prevented from bringing the wheat to perfection, as this kind of cockle is never found on ground properly managed. As the extraordinary production of this vegetable seems to be wholly different from every other kind of plant, and strongly to militate in favour of the doctrine of *equivocal generation*, now generally exploded, I have sent you this account of it, hoping that some of your ingenious correspondents, who are skilled in natural history, will favour us with their opinion on this subject."

From the Hillsborough Recorder, N. Carolina.

Received by us for re-publication from our respected correspondent, John Scott, esq. with the remark, that the "*West Cane Creek Society*" has been in operation for several years, and contributed very much to improve the Husbandry of that section of the country. We have ourselves frequently noticed and admired the beautiful state in which we have seen the Stocks of fruit trees left after the application of White Wash or Soft Soap.

EDIT. FARMER.

EFFECTS OF LIME ON APPLE TREES.

Communicated to the West Cane Creek Agricultural Society, by Benjamin Vestel, an honorary member of Chatham county.

In the spring 1819, I planted one hundred apple trees, of a very indifferent and unthrifty growth; they were knotty, and inclined much to growing of sprouts from the body and roots, insomuch that I began to despair of their being worth cultivating. However, in the spring of 1820, I cleared the roots and bodies of sprouts, which were in abundance; then cut off the tops of the trees, and grafted, which of course gave them a greater disposition to sprout; in consequence of which the grafts grew but little

that season, and the sprouts came out from the roots and bodies in abundance. In the fall of 1820, I sprouted and trimmed them clean; then took lime and made a white wash, and there-with limed the trees from the graft down to the root; except a few of them, which I left unlimed to prove the experiment. These few remain rough, sprouty and unthrifty; while those that were limed have cast off their rough coats of bark, have but little disposition to growing of sprouts, and are now thrifty and growing trees. This so fully convinces me of the good effect of lime on apple trees, that I recommend it without hesitation.

8th mo. 11th. 1821.

FOR THE AMERICAN FARMER.

At the ludicrous and ill-disguised resentment of Paddy O'Rork, even the object of it may smile. We publish this effusion of wounded feelings very cheerfully, because of its playfulness, and of our high respect for the magnanimous sons of "the Emerald Isle."

"Manure, like the Stiletto of an Irishman, never misses fire."

R. B. BUCKNER.

BALTIMORE, August, 1821.

Sir,

I am extremely sorry to trouble you on this occasion, but I feel my blood a little warmer than usual, on account of what I would call a little bit of a reflection cast on the character of my countrymen; not that I think any harm was intended, for I really believe it was meant as a compliment, but for fear that those who may be as ignorant of the subject, as the writer whom I shall presently name, might get it into their noddles, that the Irish generally use stilletos!! God preserve us from such ugly, villainous, cowardly, venomous, unmanly, treacherous, sharp-pointed, murderous weapons! I think any man that even carries such an instrument of destruction, should be confined in the penitentiary for a thousand years, and afterwards be hanged without the benefit of clergy.

I suppose, by this time, you wish to know what I want to be at; why then I will tell you: I allude to a publication in your paper of the 12th of last July, on the subject of "Manuring the cultivation of wheat, &c." by Mr. R. B. Buckner; which, by the by, I think a very good publication—wherein he uses a great many appropriate adages; and, amongst the rest, when speaking about manuring, he takes the liberty to say, "Manure, like the stiletto of an Irishman, never misses fire!!" Did ever man, woman, or child, hear of an Irishman using a stiletto before? However, as I am still of opinion, that the gentleman meant to compliment my countrymen, I feel myself under particular obligations to him, and he may be assured, that I have no wish to quarrel with him. But I think he was not sufficiently acquainted with the subject; or that his mind had been wandering over those outlandish countries, where they have so much refined upon the art of killing, as to employ the stiletto, and, by a sad mistake, he imagined it to be in the hand of an Irishman. For, I think Mr. Buckner meant to say, that "an Irishman's shilelah never missed fire." Paddy, to be sure, often carries

his shilelah, but then every one that has the use of his eyes, can see it; and we all know that it is merely intended to administer a little gentle correction, to any one that may happen to spit in his face, or tramp upon his toes with a malicious intention: but he has no disposition to murder! Not so with him who carries a stiletto—he carefully conceals it, with a murderous intent, and a mortal wound is often inflicted, before the victim is apprised of his danger. From what I have set forth, you may perceive, that I would have the publick in general, and Mr. Buckner in particular, to know, that it hurts an Irishman's sensibility, to have the use of that most vile machine, called a stiletto, attributed to him; and, that I remain their very obedient servant,

PADDY O'RORK.

Mr. J. S. Skinner.

THE DAIRY EXPERIMENT.

Morning's milk commonly yields some hundredths more cream than the evening's at the same temperature. That milked at noon furnishes the least; it would therefore be of advantage, in making butter and cheese, to employ the morning's milk, and to keep the evening's for domestic use. In milking cows this singular phenomenon is observed, that the milk obtained from one and the same milking differs considerably in quality; that, contrary to what might be expected, the milk first extracted is not the best, but that which is obtained last contains invariably the largest portion of cream. A meal's milk of one cow, milked into five vessels of the same size, and then separately examined, gave results as follow:

| No. | 1 | gave cream of | 5 | per cent. |
|-----|---|---------------|------|-----------|
| 2 | | | 8 | |
| 3 | | | 11.5 | |
| 4 | | | 13.5 | |
| 5 | | | 17.5 | |

Every regular Dairyman knows, that the last drawn milk, called *strippings*, is by far the richest; but perhaps the gradation of richness, from the first milking to the last, was not before so accurately tried.

Freeman's Journal.

ON DRYING PEACHES.

To the Editor of the American Farmer.

DEAR SIR—I have lived in various parts of the world, and I never in any place saw peaches dried as my neighbours do them here.—I really think that if some of the good house-wives in the lower counties of Maryland, understood the manner they would never pursue the old plan any more. I will relate to you the method which an old Quaker woman generally pursues, which for despatch surpasses every thing in the whole neighbourhood. Almost every night during peach time, she scalds from five to ten bushels—they are put in a large tub, and a bushel or two scalded at a time. Then they are split open—if very large they must be quartered: next morning she sets them out very carefully, though expeditiously, by placing them as close as possible with the rind downward. In good weather they will dry in three days, and be much sweeter, which is the great object in curing them. Here, Mr. Editor, are several good reasons,

for the method of these people—1st. there is a great saving of time, and time you know is money—2nd—the peaches dry in a much shorter time by being scalded, and of course the chance of loss is much less as they are not exposed to the vicissitudes of the weather so long—3d—they retain more flavour, and 4th, a much greater quantity can be cured, than in the usual way. My good old neighbour, above mentioned, cures when peaches are plenty, upwards of ten bushels in the season—and she can get all her necessities of life with the proceeds, and this without ever interfering with the other domestic concerns. Should any of the down be left on the peaches, it can be easily gotten off, by rubbing them in warm water, before they are used. Now as you gentlemen Farmers, are progressing so rapidly in the art of Agriculture, I think it behoves all wives to keep pace with their husbands—And sir, if you think the above, worthy a place in your valuable paper, I will at some leisure time give you a short essay on soap making.

Very truly, yours,

HARRIET HOMESPUN.

Loudoun, September 12th, 1821.

John S. Skinner, Esq.

P. S. I think there could be an improvement made on my neighbour's plan of scalding, by dipping a basket of peaches in a pot of boiling water, as the Eastern shore-men do oysters—they should be kept in from one to three minutes, according to the ripeness of the fruit.

H. H.

It will always give the Editor pleasure to hear from Mrs. Homespun—but this she knows very well.

THE FARMER.

BALTIMORE, FRIDAY, SEPT. 21, 1821.

The Editor acknowledges with much pleasure, the receipt of a communication from the Hon. T. Pickering, on "The felling of trees for timber"—but all arrangements had been previously made with the printer for the next number of the Farmer. The very striking remarks and facts contained in the letter from Mr P.—as well as others mentioned recently to the Editor by another judicious and distinguished farmer of Massachusetts—all go to show the great importance of the subject, and the necessity which exists for giving it a more thorough, patient and practical examination, than it has hitherto undergone.

PRICES CURRENT.

Flour from the wagons, \$5 50—Whiskey from do; 27 cts. exclusive of bbl.—Wheat, white, \$1 10 to 1 15—Red, do. \$1 05 a \$1 10—Corn 50 a 51—Oats, 25—Rye, 40—Hay, pr ton \$12 a \$14—Straw do. \$8—Live Cattle, \$5 a 6 50—Codfish, per quintal, wholesale, \$3, retail 3 50 a \$4—N. E. Beans pr bushel \$1 12½—do. Peas, 75 cts—Plaster in stone \$6 pr ton—do, ground, \$1 37½ pr barrel, 33 cts. per bushel, \$8 per ton—American White Lead, \$12 50—Ground do. 13 a 14—Linseed Oil, 75 cents—Feathers, 40 a 45 cents—Shad, new, \$6—Herrings, \$2 a \$1 25, declining—Fine Salt, 55 cents per bushel—Ground Alum do 55 a 60—St Ubes 60—Cadiz, 50 a 55—Turk's Island, 75—Beef, prime ps 8 a 10 cts—Hams, 10 a 12 cts—Middlings, 10 cts—Butter, 25 a 37½ cents—Peas, 50 cents per bushel—Eggs, 12½ cts per doz—Cheese, 8 a 10 cts per pound—Tar \$2—Turpentine, soft, 2—Hard, 1 30 to 1 6½—Pitch 2 a 2 25—Rosin, common, \$1 37½ a 1 50—Varnish, 25 cents—Spirits Turpentine, 33 cents per gal. Maryland Tobacco—sales have been made from \$9 a 6—good Tobaccos are in demand at an advanced price, \$1 50 to \$2 per cwt. No sales of Virginia.

PUBLISHED BY JOHN S. SKINNER.